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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,142	05/02/2001	Terho Kaikuranta	297-010321-US(PAR)	6584

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EXAMINER

WONG, ALBERT KANG

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 08/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/847,142

Applicant(s)

KAIKURANTA ET AL.

Examiner

Albert K Wong

Art Unit

2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2635

1. This Office action is in response to the request for reconsideration filed July 16, 2003.

Claims 1-20 are pending. None of the claims have been amended. Applicant's arguments have been carefully considered and are deemed not persuasive. Thus the previous rejection is maintained and repeated below.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

nm 3. Claims 1-3, ⁴⁻⁷~~6-7~~, 11, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton.

Regarding claim 1, the claimed keys are shown as item 14; the switching means is shown as item 62; and the illumination means s shown as item 18. Thornton teaches LEDs but the LEDs are not necessarily layered foil structures. As admitted in the specification, OLEDs are layered foil structures. It would have been obvious to one of ordinary skill in the art to substitute a conventional LED for an OLED since they perform the same light emitting functions.

Regarding claim 2, see claim 1.

Regarding claims 3 and 4, see figure 6. It is conventional to connect a key or a light source to a ground potential which forms a return path for the circuit.

Regarding claim 5, see figure 3.

Regarding claim 6, it is conventional to use voltage inputs to control the state of a device.

Regarding claim 7, the use of a switch per light is considered an obvious design choice since the number of switches per light is not critical. The voltage control lines have been discussed above.

Regarding claim 11, see figure 3.

Regarding claim 16, the keyboard made with a plurality of LED made of layered foil structures has been discussed in claim 1. It would have been obvious to use the keyboard in the same way as a keyboard made with conventional LEDs since the LEDs function equivalently.

4. Claim 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton as applied to claim 5 above, and further in view of 11-126047.

Regarding claims 8 and 9, Thornton does not explicitly teach a converter or a serial to parallel controller. 11-126047 teaches the converter/controller function. It would have been obvious to use the control circuits to convert illumination commands into actual signals for controlling the lights.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and 11-126047 as applied to claim 8 above, and further in view of 11-327509.

Regarding claim 10, the prior references do not teach the use of sequence memory to control the illumination. This feature is taught by 11-327509. It would have been obvious to use memory to control a display pattern since this would require relatively few hardware components.

6. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton as applied to claim 1 above, and further in view of 08-148056.

Regarding claim 12, the structure in Thornton is similar to the claimed key structure with several minor differences. The claimed mechanical structure, dome layer, pcb, and key layer are shown in Figure 1. It would have been obvious that the particular key structure is merely an obvious design choice since a variety of mechanical structures perform the function equally well.

Regarding claim 13, the use of a perforated layer and an outer cover is conventional in switch structures. The perforated layer allows the contacts between the switch and the circuit board to complete the circuit for switch actuation and an outer cover allows an overlay to identify the keys.

Regarding claim 14, the use of OLDs have been shown to be obvious.

Regarding claim 15, the use of light guides is conventional in lighted keyboards and permits the use of a single light source to illuminate an area.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton as applied to claim 16 above, and further in view of 08-265413.

Regarding claim 17, 08-265413 teaches the function of using keypad illumination to identify the call. It would have been obvious to combine the references since they are in the same field of endeavor. The use of the same device in a known way is considered obvious.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton as applied to claim 16 above, and further in view of 6-274261.

Regarding claim 18, the reference teaches the illumination of specific keys in specific modes to indicate that one key is more preferable than others. It would have been obvious to use selective lighting to help the user distinguish the critical keys over the remaining keys of the keyboard to simplify usage.

9. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton as applied to claim 16 above, and further in view of 11-88948.

Regarding claims 19 and 20, the reference teaches the use of games on cell phones using the keypad of the phone. As stated above, it would have been obvious to selectively illuminate keys to aid the user in key selection.

Response to Remarks

10. Applicants' remarks are based on two principles. First that the prior art fails to teach an illumination means using semiconductor foil structures and second, it would not have been obvious to substitute a conventional LED with an OLED. Similarly, the method of using such structures is not taught. Both arguments are not persuasive and the prior rejections provides a sufficient prima facie case for non-patentability.

What is not disputed is the fact that Thornton does not teach the use of a semiconductor foil illumination structure. Such devices are well known in the art as evidenced by the Shipman '183 reference. Second, it is the Examiner's contention that it would have been obvious to substitute an OLED (a semiconductor foil structure) for a conventional LED since both are illumination devices. The determination is not based on impermissible hindsight but on one of ordinary skill in the art at the time of the invention. It is presumed that one of ordinary skill would understand that basic illumination sources are interchangeable and that each source may be substituted for another equivalent for its inherent advantages. The use of an organic LED in place of a conventional LED is similar to the replacement of an incandescent bulb with a halogen bulb. An organic LED is a flatter device with lower power consumption. This is a desired

feature in any electronic device because it increases battery life and reduces the size of the necessary components.

As further evidence of the obviousness of substituting an OLED for a conventional LED, applicants' attention is directed toward the following reference: Duggal '371 teaches in col. 1 that LED are used both as backlight devices and as replacements for small conventional lamps. On col. 11, the reference teaches that the particular illumination source is not limited to a semiconductor LED (conventional LED) but includes OLEDs. Thus, the reference clearly teaches that an OLED and an LED may be interchangeable illumination sources. Johnson '731 teaches in col. 6 that LEDs and OLEDs are interchangeable illumination sources. Tiao '953 teaches in col. 3 that illumination sources includes LED, OLED and EL devices. Note that the foil illumination device in Shipman '183 is an EL device. Therefore, the cited references provide objective evidence of the interchangeability of LEDs with OLEDs.

Although most of the cited references focus on the use of OLEDs as an illumination source for a display or for an actual display itself, this fact does not negative the teaching of the use of OLEDs as illuminators for keys. Further, Acevedo '361 (previously cited) teaches the use of LEDs, LCDs, and only other display technology for the purpose of illuminating keys or providing an indicator on the keys. Since it is recognized that OLEDs may also serve as backlights for LCDs or as display elements, it would have been obvious to use them in a keyboard such as disclosed in Acevedo. Finally, Stanek '554 (previously cited) teaches the use of LEDs to illuminate keys. Specifically, in col. 8, lines 65-end, the reference teaches that other manners of key illumination is contemplated. An organic LED is merely a special form, but it performs the same illumination function.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert K Wong whose telephone number is 703-305-8884. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on 703-305-4704. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.



Albert K. Wong
August 22, 2003

MICHAEL HORABIK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

